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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,572	MITCHELL ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2474	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/22/11*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/2011 has been entered.

2. The amendment filed on 4/22/2011 has been entered and fully considered.

3. Claims 1-10, 13-20, 23-30, 33-45, and 51-66 are pending. Claims 1, 15, 25, 35, and 38 are the base independent claims. All independent claims 1, 15, 25, 35, and 38 as well as dependent claims 7, 9-10, 20, 23-24, 30, 33-34, 39, 40, 41-55 and 61-66 are amended.

Information Disclosure Statement

4. The Information Disclosure Statement (IDS) submitted on 4/22/2011 has been fully considered and the corresponding 1449 form is an attachment to the instant Office Action.

Claim Objections

5. **Claims 38-40 and 42-45** are objected to because of the following informalities:

Regarding **claim 38**, lines 9-10 recites "communications channel" and should be - - communications network - -

Claims 39-40 are also objected for depending on claim 38.

Regarding **claim 42**, line 3 recites "said first" and should be - -said first link - -

Regarding **claim 43,** line 4 recites "said first" and should be - -said first link - -

Regarding **claim 44**, line 4 recites "said first" and should be - -said first link - -

Regarding **claim 45**, line 4 recites "said first" and should be - -said first link - -

Appropriate correction is required.

Response to Arguments

6. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection based on Masuyama '063. It is the position of the Examiner that Masuyama '063 addresses all fail back limitation in a dual homed network and the combination of Sakiso'390 and Masuyama '063 adequately teach the claimed invention. Further Examiner encourages Applicant to review other new prior arts listed in 892 form in relation to future amendments with respect to fail over and recovery mechanisms.

7. The 112/2nd paragraph rejection of claim 15 is still maintained despite the fact that Applicant has indicated support for each "means for claim element" in the specification. The rejection is maintained because each of the support indicated by Applicant did not give any more specific details of each claim element other than reciting the claim language in one form or another.

For instance Applicant cited in the Remarks on page 19 ""means for detecting a recovery of said first link" can be found at least at paragraphs [0027] and [0032] and

Figure 2 (performed by link failure propagation module 204 as configured by configuration interface 202);" But paragraphs 27 and 32 of the specification other than indicating a recovery of said first link it does not discuss and provide a detailed algorithm on how the detection is implemented. All of the supports mentioned by Applicant to provide a structural support for the different means for claim elements are deficient in a similar manner. Examiner encourages Applicant to refer to Federal Register /Vol. 76 No. 27 Wednesday February 9, 2011 Notices pp. 7162-7175 and in particular page 7168 that discusses the adequacy of structure for a computer implemented function/.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 15-20, 23-24, 42, 52, 57, and 62** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Regarding **claim 15**,

claim elements:

"means for detecting a recovery of said first link;",

"means for disabling a second port of said network element..."

"means for re-enabling said second port of said network..."

"means for said communications channel falling back..."

are a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. Applicant has cited paragraphs 18-19, 27-30, 32, 34, Fig, 2 elements 202 and 204 and Fig. 3 step 306.

The corresponding support cited by Applicant for the claimed element in the disclosure is simply a repeat of the claim language itself in one form or another (see applicant's disclosure paragraphs 27 and 32 simply indicate in so many words , "means for detecting a recovery of said first link;" and fails to provide a detailed steps of how a first link recovery is detected) and does not provide detailed algorithm on how the claimed element is implemented. Merely referencing to a general purpose computer with appropriate programming without providing any detailed explanation of the appropriate programming is not adequate disclosure of the corresponding structure to satisfy the requirements of 35 U.S.C. 112, second paragraph.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so

that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claims 16-20, 23-24, 42, 52, 57, and 62 contain a similar issue as discussed for **claim 15** above, thus, the dependent claims are rejected for the same reasons as set forth above for claim 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 1-10, 13-20, 23-30, 33-45, 51-60, and 66** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso (US Pub. 2004/0105390) in view of Masuyama et al (US Pub. No. 2005/0058063 A1)

Regarding **claim 1**, Sakiso'390 discloses

A method comprising:

detecting a failure of a first link **(Figure 1, Failure 1)**, wherein said first link **(Figure 1, LSW1 – also referred to as down-link in paragraph 28)** is coupled between a first port **(Port connecting LSW1 link to LAN-switch SW1 - See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** of a network element **(Figure 1, LAN-Switch SW1)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

said first link **(Figure 1, LSW1)** comprises a first part of a communications channel between said upstream portion **(i.e. Figure 1, LAN-switch SW7→LSW7--→ R1)** of said communications network and a downstream portion **(Figure 1, LAN-Switch SW1:--→L1-1,L1-2---->Host-1,Host-2)** of said communications network **(See Fig. 1 and paragraphs 18 and 28);**

in response to said detecting said failure **(i.e. Failure 1 in Fig,. 1)** of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**,

disabling a second port of **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1- See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraphs 7, 18, 27 and abstract)** said network element **(Figure 1, LAN-Switch SW1)** wherein a second link **(Fig. 1 $L1_1$ is the second link)** is coupled between said second port of said network element **(Port connecting LAN – Switch to link $L1_1$)** and said downstream portion of said communications network (**i.e. via $L1_1$ toward Host 1**), and said second link comprises a second part of said communications channel **(i.e. via $L1_1$ toward Host 1 is second part of the primary communication between Host 1 and router R1 wherein LSW1 and LSW7 of Fig. 1 constitute the first part of the primary communication – see paragraphs 26-28).**

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, re-enabling said second port of said network element; and in response to said re-enabling said second port said communications channel falling back to said first link and said second link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Masuyama '063. In particular, Masuyama '063 discloses

in response to detecting a recovery of said first link **(i.e. network link 70a of Figs 1-3)**, re-enabling said second port **(Fig. 3 - port 1 is switch side port 72 and port 2 is server side port 62 and server side port 62 is re-enabled after being disabled – see paragraphs 36-37 and Fig. 4 steps 120, 122, and 124)** of said network element **(Switch 40 Figs. 1-3)**, and in response to said re-enabling said

second port said communications channel falling back to said first link **(i.e. network link 70a of Figs 1-3)**, and said second link. **(i.e. local link 60a of Fig. 1-3 and Fig. 4 step 124 – for details see Figs. 1-4 and paragraphs 36-37)**

In view of the above, having the method of Saksio'390 and then given the well established teaching of Masuyama '063, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Saksio'390 as taught by Masuyama '063, since Masuyama '063 suggests in paragraph 40 that the modification results in optimizing the use of network bandwidth by providing fail-over mechanism without using probe packets.

Regarding **claim 2,** Saksio'390 discloses a method wherein the downstream portion of the communications network comprises a redundantly linked network element. **(See Figure 1, Hosts 1…9 is multi-homed with active and stand-by links).**

Regarding **claim 3,** Saksio'390 discloses a method wherein the redundantly-linked network element comprises a protocol stack including a first protocol stack layer and a second protocol stack layer, the first protocol stack layer is associated with one or more applications, and the disabling comprises notifying the second protocol stack layer of the failure. **(See Figures 2a and 2b - the protocol stacks involved are the MAC and PHY layers)**

Regarding **claim 4**, Saksio'390 discloses a method wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the method further comprises enabling a third link between the redundantly-linked network element **(Figure 1, Host 1)** and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LSW2). (See also paragraphs 26-29).**

Regarding **claim 5**, Saksio'390 discloses a method wherein the redundantly linked network element comprises a multi-homed end station **(See Figure 1, all Hosts are indeed multi-homed end station)**.

Regarding **claim 6**, Saksio'390 discloses a method wherein the network element comprises a data link layer network element. **(See Paragraphs 6 and 18)**

Regarding **claim 7**, Saksio'390 discloses wherein the second port is not re-enabled, if said port is configured to remain disabled in response to said detecting said recovery of said first link. **(See Paragraph 31 – where after a link is repaired and has recovered through override management/maintenance operation re-enabling port/communication can be prevented)**

Regarding **claim 8**, Saksio'390 discloses a method wherein the upstream portion of the communications network comprises a network layer network element. **(Figure 1 – R1 and R2 are routers and are network layer network elements)**

Regarding **claim 9**, Saksio'390 discloses a method of claim 1 wherein the disabling said second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a)** further comprises: disabling a plurality of links (**links $L1_{1...n}$)** between the network element **(i.e.. LAN-Switch SW1 of Fig. 1)** and a plurality of redundantly-linked network elements, wherein said downstream portion of said communication network comprises said plurality of redundantly linked network elements **(Figure 1-. Hosts 1-3 are redundantly network elements – see paragraphs 26-28)**

Regarding **claim 10,** Saksio'390 discloses claim 1 wherein the disabling said second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a)** further comprises: disabling a link (**$L1_1$ in Fig. 1)** of a plurality of links (**links $L1_{1...n}$)** between the network element **(i.e.. LAN-Switch SW1 of Fig. 1)** and a plurality of redundantly-linked network elements, wherein said downstream portion of said communication network comprises said plurality of redundantly linked network elements **(Figure 1-. Hosts 1-3 are redundantly network elements – see paragraphs 26-28)**

Regarding **claim 13**, Saksio'390 discloses a method wherein the disabling said second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a**) further comprises: disabling the second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a**) of the network element **(i.e.. LAN-Switch SW1 of Fig. 1)** within a period of time substantially less than or equal to 50 milliseconds of the detecting .said failure of said link **(See Paragraphs 14 and 16)**

Regarding **claim 14,** Saksio'390 discloses a method wherein the disabling said second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a**) further comprises: disabling the second port (**Ports connecting LAN –Switch to links $L1_{1...n}$ is disabled as a result of Failure 1- See Figs. 1&2a**) of the network element **(i.e. LAN-Switch SW1 of Fig. 1)** within a period of time substantially less than or equal to 2 seconds of the detecting said failure of said link **(See Paragraphs 14 and 16). (See Paragraphs 14 and 16 and given that Saksio'390 teaches the same method the same performance has to be produced)**

Regarding **claim 15**, Saksio'390 discloses an apparatus **(See Figure 1)** comprising:

means for detecting **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)** a

a first link **(Figure 1, Failure 1)**, wherein

said first link **(Figure 1, LSW1 – also referred to as down-link in paragraph 28)** is coupled between a first port **(Port connecting LSW1 link to LAN-switch SW1 - See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** of a network element **(Figure 1, LAN-Switch SW1)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

said first link **(Figure 1, LSW1)** comprises a first part of a communications channel between said upstream portion **(i.e. Figure 1, LAN-switch SW7→LSW7--→ R1)** of said communications network and a downstream portion **(Figure 1, LAN-Switch SW1:--→L1-1,L1-2---->Host-1,Host-2)** of said communications network **(See Fig. 1 and paragraphs 18 and 28);**

means for detecting a recovery of said first link **(See Paragraph 31 – when first link is recovered all dependent links are in link up state)**;

means for disabling a second port of **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1- See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** said network element **(Figure 1, LAN-Switch SW1)**

in response to said means for detecting said failure **(i.e. Failure 1 in Fig,. 1)** of said first link **(link down state is propagated down the chain all the way to the**

hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state),

wherein a second link **(Fig. 1 $L1_1$ is the second link)** is coupled between said second port of said network element **(Port connecting LAN –Switch to link $L1_1$)** and said downstream portion of said communications network **(i.e. via $L1_1$ toward Host 1)**, and said second link comprises a second part of said communications channel **(i.e. via $L1_1$ toward Host 1 is second part of the primary communication between Host 1 and router R1 wherein LSW1 and LSW7 of Fig. 1 constitute the first part of the primary communication – see paragraphs 26-28).**

Sakiso'390 fails to disclose

means for re-enabling said second port of said network element; in response to said means for detecting said recovery of said first link, and means for said communications channel falling back to said first link and said second link, in response to said re-enabling said second port.

However, the above mentioned claimed limitations are well known in the art as evidenced by Masuyama '063. In particular, Masuyama '063 discloses

means for re-enabling said second port of said network element **(i.e. failover circuit 42 – Figs. 1-3)** in response to said means for detecting said recovery of said first link **(i.e. network link 70a of Figs 1-3)**, and means for said communications channel falling back to said first link and said second link **(i.e. local link 60a)**, in response to said re-enabling said second port. **(Fig. 3 - port 1 is switch side port 72 and port 2 is**

server side port 62 and server side port 62 is re-enabled after being disabled – see paragraphs 36-37 and Fig. 4 steps 120, 122, and 124)

In view of the above, having the apparatus of Saksio'390 and then given the well established teaching of Masuyama '063, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Saksio'390 as taught by Masuyama '063, since Masuyama '063 suggests in paragraph 40 that the modification results in optimizing the use of network bandwidth by providing fail-over mechanism without using probe packets.

Regarding **claim 16**, it is noted that the limitations of claim 16 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 17**, it is noted that the limitations of claim 17 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 18**, it is noted that the limitations of claim 18 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 19**, it is noted that the limitations of claim 19 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 20,** it is noted that the limitations of claim 20 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 23**, it is noted that the limitations of claim 23 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding **claim 24,** it is noted that the limitations of claim 24 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claim 25**, Saksio'390 discloses a machine readable non-transitory storage medium having a plurality of instructions executable by a machine embodied therein **(See Figures 2A and 2B showing implementation of the switch and host and in paragraphs 33 and 36 Saksio'390 describes the medium the instruction is stored)**, wherein the plurality of instructions wherein executed cause the machine to perform a method comprising:

detecting a failure of a first link **(Figure 1, Failure 1)**, wherein said first link **(Figure 1, LSW1 – also referred to as down-link in paragraph 28)** is coupled between a first port **(Port connecting LSW1 link to LAN-switch SW1 - See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** of a network element **(Figure 1, LAN-Switch SW1)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

said first link **(Figure 1, LSW1)** comprises a first part of a communications channel between said upstream portion **(i.e. Figure 1, LAN-switch SW7→LSW7--→ R1)** of said communications network and a downstream portion **(Figure 1, LAN-Switch SW1:--→L1-1,L1-2---->Host-1,Host-2)** of said communications network **(See Fig. 1 and paragraphs 18 and 28);**

in response to said detecting said failure **(i.e. Failure 1 in Fig,. 1)** of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**,

disabling a second port of **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1- See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** said network element **(Figure 1, LAN-Switch SW1)** wherein a second link **(Fig. 1 $L1_1$ is the second link)** is coupled

between said second port of said network element **(Port connecting LAN –Switch to link $L1_1$)** and said downstream portion of said communications network (**i.e. via $L1_1$ toward Host 1**), and said second link comprises a second part of said communications channel **(i.e. via $L1_1$ toward Host 1 is second part of the primary communication between Host 1 and router R1 wherein LSW1 and LSW7 of Fig. 1 constitute the first part of the primary communication – see paragraphs 26-28).**

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, re-enabling said second port of said network element; and in response to said re-enabling said second port said communications channel falling back to said first link and said second link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Masuyama '063. In particular, Masuyama '063 discloses

in response to detecting a recovery of said first link **(i.e. network link 70a of Figs 1-3)**, re-enabling said second port **(Fig. 3 - port 1 is switch side port 72 and port 2 is server side port 62 and server side port 62 is re-enabled after being disabled – see paragraphs 36-37 and Fig. 4 steps 120, 122, and 124)** of said network element **(Switch 40 Figs. 1-3)**, and in response to said re-enabling said second port said communications channel falling back to said first link **(i.e. network link 70a of Figs 1-3)**, and said second link. **(i.e. local link 60a of Fig. 1-3 and Fig. 4 step 124 – for details see Figs. 1-4 and paragraphs 36-37)**

In view of the above, having the medium of Saksio'390 and then given the well established teaching of Masuyama '063, it would have been obvious to one having

ordinary skill in the art at the time of the invention was made to modify the medium of Saksio'390 as taught by Masuyama '063, since Masuyama '063 suggests in paragraph 40 that the modification results in optimizing the use of network bandwidth by providing fail-over mechanism without using probe packets.

Regarding **claim 26**, it is noted that the limitations of claim 26 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 27**, it is noted that the limitations of claim 27 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 28**, it is noted that the limitations of claim 28 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 29**, it is noted that the limitations of claim 29 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 30,** it is noted that the limitations of claim 30 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 33**, it is noted that the limitations of claim 33 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding claim 34, it is noted that the limitations of claim 34 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claims 35**, Saksio'390 discloses a data processing system comprising:

a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**; and a network element **(Figure 1, LAN-Switch SW1)** configured to

detect a failure of a first link **(Figure 1, Failure 1)**, wherein

said first link **(Figure 1, LSW1 – also referred to as down-link in paragraph 28)** is coupled between a first port **(Port connecting LSW1 link to LAN-switch SW1 - See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** of a network element **(Figure 1, LAN-Switch SW1)** and an upstream

portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

said first link **(Figure 1, LSW1)** comprises a first part of a communications channel between said upstream portion **(i.e. Figure 1, LAN-switch SW7→LSW7--→ R1)** of said communications network and a downstream portion **(Figure 1, LAN-Switch SW1:--→L1-1,L1-2---->Host-1,Host-2)** of said communications network **(See Fig. 1 and paragraphs 18 and 28);**

in response to detection of said failure **(i.e. Failure 1 in Fig,. 1)** of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**,

disable a second port of **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1- See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** said network element **(Figure 1, LAN-Switch SW1)** wherein a second link **(Fig. 1 $L1_1$ is the second link)** is coupled between said second port of said network element **(Port connecting LAN –Switch to link $L1_1$)** and said downstream portion of said communications network **(i.e. via $L1_1$ toward Host 1)**, and said second link comprises a second part of said communications channel **(i.e. via $L1_1$ toward Host 1 is second part of the primary communication between Host 1 and router R1 wherein LSW1 and LSW7 of Fig. 1 constitute the first part of the primary communication – see paragraphs 26-28).**

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, re-enabling said second port of said network element; and in response to said re-enabling said second port said communications channel falling back to said first link and said second link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Masuyama '063. In particular, Masuyama '063 discloses

in response to detection of a recovery of said first link **(i.e. network link 70a of Figs 1-3)**, re-enabling said second port **(Fig. 3 - port 1 is switch side port 72 and port 2 is server side port 62 and server side port 62 is re-enabled after being disabled – see paragraphs 36-37 and Fig. 4 steps 120, 122, and 124)** of said network element **(Switch 40 Figs. 1-3)**, and in response to said re-enabling said second port said communications channel falling back to said first link **(i.e. network link 70a of Figs 1-3)**, and said second link. **(i.e. local link 60a of Fig. 1-3 and Fig. 4 step 124 – for details see Figs. 1-4 and paragraphs 36-37)**

In view of the above, having the system of Saksio'390 and then given the well established teaching of Masuyama '063, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Masuyama '063, since Masuyama '063 suggests in paragraph 40 that the modification results in optimizing the use of network bandwidth by providing fail-over mechanism without using probe packets.

Regarding **claims 36**, Saksio'390 discloses a data processing system wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the redundantly-linked end station **(Host 1)** is configured to enable a third link **(Figure 1, $L1_2$)** between the redundantly-linked end station and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LAN-SW2)**.

Regarding **claim 37**, Saksio'390 discloses a data processing system wherein the network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 38**, Saksio discloses a data processing system comprising:
a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**;
a primary network element **(Figure 1, LAN-switch SW1)**, wherein

a first port **(Port connecting LSW1 link to LAN-switch SW1 - See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and illustrated in paragraph 7 and abstract)** of the primary network element **(Figure 1, LAN-switch SW1)** is coupled to an upstream portion of a communications network using a first link **(Figure 1, LSW1)**,

a second port of **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1- See Fig. 2a each SW is connected to another SW or router in both upstream and downstream direction via ports as shown in Fig. 2a and**

illustrated in paragraph 7 and abstract) the primary network element is coupled to the redundantly-linked end station using a second link **(Figure 1, $L1_1$)**,

said first link **(Figure 1, LSW1)** comprises a first part of a communications channel between said upstream portion **(i.e. Figure 1, LAN-switch SW7→LSW7--→ R1)** of said communications network and a downstream portion of said communications network and said redundantly linked end-station **(Figure 1, LAN-Switch SW1:--→L1-1,L1-2---->Host-1,Host-2) (See Fig. 1 and paragraphs 18 and 28),**

said second link **(Figure 1, $L1_1$)** comprises a second part of said communications channel **(i.e. via $L1_1$ toward Host 1 is second part of the primary communication between Host 1 and router R1 wherein LSW1 and LSW7 of Fig. 1 constitute the first part of the primary communication – see paragraphs 26-28),** and

the primary network element **(Figure 1, LAN-switch SW1)** is configured to detect a failure of the first link **(Figure 1, Failure 1)**, and

disable said second port **(Port connecting LAN –Switch to link $L1_1$ is disabled as a result of Failure 1)** of the primary network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link **(Figure 1, $L1_1$)** in response to detection of said failure of said first link **(See paragraphs 7, 18, 27-28 and 30).**

Saksio'390 fails to disclose

in response to detection of said failure of said first link,

re-enable said second port of said primary network element coupled to said second link in response to detection of a recovery of said first link; and

said redundantly-linked end station, wherein

said redundantly-linked end station is configured to fail back to said communications channel comprising said second link in response to re-enabled said second port.

However, the above mentioned claimed limitations are well known in the art as evidenced by Masuyama '063. In particular, Masuyama '063 discloses

in response to detection of said failure of said first link **(Fig. 4 step 110 - no option indicates first link 70a is down - see paragraph 36)**,

re-enable said second port **(Fig. 3 port 62)** of said primary network element **(Figs. 1-3 switch 40)** coupled to said second link **(Figs. 1-2 link 60a)** in response to detection of a recovery of said first link **(first link 70a)**; and

said redundantly-linked end station (**Figs. 1-2 server 20)**, wherein

said redundantly-linked end station is configured to fail back to said communications channel comprising said second link in response to re-enabled said second port **(Fig. 4 steps 122 and 124)**, and said primary network device is configured to fail back to said communications channel comprising said first link, in response to re-enabled said second port **(See - Fig. 4 steps 120, 122, and 124 and paragraphs 36-37 disclose how server 20 as a redundantly-linked end station and switch 40 as a primary network device fall back to the first link 70a as a fail back operations)**

In view of the above, having the system of Saksio'390 and then given the well established teaching of Masuyama '063, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Masuyama '063, since Masuyama '063 suggests in paragraph 40 that the modification results in optimizing the use of network bandwidth by providing fail-over mechanism without using probe packets.

Regarding **claim 39**, the combination of Saksio'390 and Masuyama '063 discloses a data processing system of claim 38,

further comprising:

a secondarv network element **(Sakiso'390 Fig. 1 LAN-Switch SW2, Masuyama '063 Figs. 1-3 switch 46)**, wherein

said secondarv network element is coupled to said redundantly-linked

end station **(Sakiso'390 Hosts 1-3 and Masuyama '063 Server 20)** using a third link **(i.e. Sakiso'390 $L1_2$ and Masuyama '063 Figs. 1-3 link 60b)**

said redundantly-linked end station is configured to enable said third link

in response to disabled said second port **(Sakiso'390 paragraphs 26-28 and Masuyama '063 paragraphs 36-37)**, and

said secondary network element is coupled to said upstream portion of

said communications network using a fourth link **(Sakiso'390 Fig. 1 LSW2 and Masuyama '063 link 70b in Figs. 1-3)** and

said redundantly-linked end station is configured to fail over to another communications channel comprising said third link and said fourth link, in response to disabled said second port **(Sakiso'390 paragraphs 26-28 and Masuyama '063 paragraphs 36-37 and Fig. 4)** .

Regarding **claims 40**, Saksio'390 discloses a data processing system wherein the primary network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 41**, Saksio'390 and Masuyama '063 discloses a method wherein the second link is predetermined using a configuration interface to be automatically disabled in response to said detecting said failure of said first link. **(Saksio'390 already teaches the second link is a downstream link and is associated with a specific first link– see Sakiso'390 paragraphs 26-28 and Figs 1 and 2a and Masuyama '063 Figs. 1-4 and paragraphs 35-37).**

Regarding **claim 42**, it is noted that the limitations of claim 42 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 43**, it is noted that the limitations of claim 43 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 44**, it is noted that the limitations of claim 44 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 45**, it is noted that the limitations of claim 45 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 51**, the combination of Saksio'390 and Masuyama '063 discloses a method wherein the disabling the second port further comprises (Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages) determining on-demand upon said detecting said failure of said first link, that said second port should be disabled in response to analyzing a plurality of system attributes **(Masuyama '063 shows in paragraphs 31 and 39 that user can enable fail over mode or disable it and that will allow on demand disabling of a second port)**

Regarding **claim 52**, it is noted that the limitations of claim 52 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 53**, it is noted that the limitations of claim 53 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 54**, it is noted that the limitations of claim 54 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 55**, it is noted that the limitations of claim 55 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 56**, the combination of Saksio'390 and Masuyama '063 discloses a method further comprising: the redundantly-linked network element **(Figures 1-3 switch 40 in Masuyama '063)** failing back to the second link **(i.e. link 60a in Masuyama '063 Figs. 1-3**) when the first link **(i.e. link 70a in Masuyama '063 Figs. 1-3)** and the second link become operational again **(See Masuyama '063 Figs. 1-3 and Fig. 4 and paragraphs 36-37)**.

Regarding **claim 57**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 58**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 59**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 60**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 66**, the combination of Sakiso'390 and Masuyama '063 discloses the method of claim 1, wherein said second port **(i.e. Masuyama '063 port 62 in Fig. 3)** of said network element **(Masuyama '063 Figs. 1-3 switch 40)** is directly connected to said second link **(i.e. link 60a is directly connected to port 62 as shown in Fig. 3)** between said network element **(Masuyama '063 Figs. 1-3 switch 40)** and said downstream portion of said communications network **(i.e. server 20 in Figs. 1-3 is**

the downstream portion of network system 10 directly connected to the second link 60 as detailed in Masuyama '063 paragraphs 36-37).

12. **Claims 61-65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso'390 in view of Masuyama '063 as applied to claims 1, 15, 25, 35, and 38 respectively above, and further in view of Gai'491 and Herbert'780.

Regarding **claim 61**, the combination of Sakiso'390 and Masuyama '063 fail to disclose a method wherein

said first link is associated with a virtual network;

said second link is associated with said virtual network; and

said second port of said network element is disabled as a result of

said second port being associated with said virtual network,

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses a method of detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network **(i.e. Figure 1)** and the second port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block**

356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network) with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the method based on the combination of Saksio'390 and Masuyama '063 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Masuyama '063 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

The combination of Saksio'390 and Masuyama '063 fails to disclose a method wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a method wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch**

880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10).

In view of the above, having the method based on the combination of Saksio'390 and Masuyama '063 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Masuyama '063 as taught by Herbert'780, since Herbert'780 clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 62**, it is noted that the limitations of claim 62 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 63**, it is noted that the limitations of claim 63 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 64**, it is noted that the limitations of claim 64 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 65**, it is noted that the limitations of claim 65 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Habte Mered/
Examiner, Art Unit 2474